

WHAT IS CLAIMED IS:

1. A switching circuit having a switching element, comprises a current detecting circuit having a main switch composed of MOSFET, whose on-voltage shows resistance characteristics, wherein a gate terminal thereof is connected to a driving circuit, and further one of a drain terminal and a source terminal thereof is connected to a fixed potential and the other terminal is connected to a load circuit, a first resistance element having higher resistance value than on-resistance of the main switch, a subsidiary switch composed of MOSFET, the source terminal of which is connected to the first resistance element, an amplifier that amplifies comparatively voltage generated in the first resistance element and on-voltage of the main switch and outputs it to a gate terminal of the subsidiary switch, and a second resistance element that generates voltage by amplifying on-current of the main switch by connecting to a drain terminal of the subsidiary switch.
2. The switching circuit according to Claim 1, wherein one of terminals of the first resistance element is further connected to a fixed potential as in the main switch.
3. The switching circuit according to Claim 1, wherein a third switch, whose gate signal synchronizes that of the main switch, is connected between the first resistance element and the subsidiary switch.
4. The switching circuit according to Claim 1, wherein one of terminals of the first resistance element is connected to a fixed potential as in the main switch and the third switch, whose gate signal synchronizes that of the main switch is connected between the first resistance element and the subsidiary switch.
5. The switching circuit according to Claim 1, wherein one of terminals of the first resistance element is connected to a terminal which is connected to a load circuit of the main switch, and the other terminal of the first resistance element is connected to the

source terminal of the subsidiary switch.

6. The switching circuit according to Claim 1, wherein the first resistance element has the same cell structure as the main switch and is MOSFET biased by a fixed gate or poly-silicon resistance.

7. The switching circuit according to Claim 1, wherein the first resistance element has the same cell structure as the main switch and is MOSFET biased by fixed gate or poly-silicon resistance, wherein one of terminals of the first resistance element is connected to a fixed potential as in the main switch.

8. The switching circuit according to Claim 1, wherein the first resistance element has the same cell structure as the main switch and is MOSFET biased by a fixed gate or poly-silicon resistance wherein the third switch, whose gate signal synchronizes that of the main switch, is connected between this first resistance element and the subsidiary switch.

9. The switching circuit according to Claim 1, the first resistance element has the same cell structure as the main switch and is MOSFET biased by a fixed gate or poly-silicon resistance, wherein one of terminals of the first resistance element is connected to a fixed potential as in the main switch and the third switch, of which gate signal synchronizes that of the main switch, is connected between this first resistance element and the subsidiary switch.

10. The switching circuit according to Claim 1, the first resistance element has the same cell structure as the main switch and is MOSFET biased by the fixed gate or poly-silicon resistance wherein one of terminals of this first resistance element is connected to a terminal which is connected to the load circuit of the main switch and the other terminal of the first resistance element is connected to the source terminal of the subsidiary switch.